

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

SOME PLANTS OF WEST VIRGINIA.

BY E. L. MORRIS.

During July and August, 1900, in company with Messrs. Hay, Holt, Miller, Roller and Sterrett, of the United States Fish Commission, to whose aid he is indebted in no small degree, the writer botanized a little in that part of West Virginia which is south of the Greenbrier, New and Kanawha Rivers and east of a northeast and southwest line bisecting the state lengthwise. This portion of West Virginia comprises Summers, Monroe, Mercer, McDowell, Wyoming and Raleigh Counties, given in the order of travel. The nature of these counties is very mountainous, though no very high altitudes are reached, the extremes of the points visited being 975 feet at Iaeger, McDowell County, and 3700 feet on East River Mountain, between Mercer County, West Virginia, and Bland County, Virginia, while there are points reaching slightly over 4100 feet. Though the larger rivers trend in a westerly or northwesterly direction there are no definite chains of mountains in these counties extending for more than a few miles, their ranges being abruptly cut off by river tributaries of all sizes. These small streams flow from all directions through such short and deep valleys that the whole country is choppy. The advantage to the botanist therefrom is the abundance of variety in the di-

rection of surface exposure, of springs and small streams, of sandstone and limestone cliff and talus formations, of vast forest tracts not until the present falling to the axe, and of occasional stretches, narrow to be sure, of bottomland along the larger streams. The great impression is that of many mountains for the most part well timbered. The impression from minute characters is that there is a constant supply of moisture. Although the Summer of 1900 was so dry that many springs and streams reputed to be constant went dry, the mountains not yet deforested were covered with a rich, moist humus; the rocks were hidden under mosses and lichens till the surface looked like a vast tapestry; the fields and open hillsides, exposed to the sun, supported everywhere between the stems and roots of higher plants a filling of mosses and liverworts. These conditions are traceable to the nightly enveloping of every summit and the filling of every valley with clouds.

In making the following records and collections, the writer practically was limited by other requirements to the country immediately adjacent to the roads traversed from camp to camp, along a few of the streams, and to only three summits of mountains. Mr. Wm. R. Maxon of the National Herbarium has kindly determined and described as new a subspecies of *Polypodium*.

The object of publishing this list, containing forty-seven species unreported from West Virginia, and two new subspecies is to show the need of very active collecting in the extreme southern part of the State to approximately complete the knowledge of its flora.*

Thallophyta.

Myxomycetes.

CERATIOMYXA FRUTICULOSA (Muell.) MacB. (Determined by O. F. Cook.)

Along Delashmeet Creek, Mercer County, altitude 2090 feet, July 25, 1900 (*Morris*, 946).

PHYSARUM RUFIPES (A. & S.) Morgan. (Determined by O. F. Cook.)

Along Tugg Creek, Hinton, Summers County, July 10, 1900 (*Morris*, 945).

*Consult Millspaugh and Nuttall, Field Columbian Museum Publication 9. Bot. Ser. 1, 2 (Flora of West Virginia), 1896.

STEMONITIS SMITHII MacB. (Determined by MacBride.)
As the first (*Morris*, 949).

LYCOGALA CONICUM Pers. (Determined by O. F. Cook.)
As above (*Morris*, 947).

Lycoperdaceae.

GEASTER HYGROMETRICUS Pers.

Along Horsepen Creek, McDowell County, July 30-August 1,
1900 (*Morris*, 1105a).

Ascomycetes.

DIMEROSPORIUM COLLINSII (S.) Thüm.

On *Carpinus Caroliniana*, Kegley, Mercer County, July 27, 1900
(*Morris*, 1078).

Discolichenes.

CLADONIA SYLVESTRIS L.

On the mountain between Barrenshe Creek and Dry Fork,
McDowell County, altitude 1700 feet, August 6, 1900 (*Morris*,
1163).

Bryophyta.

Jungermanniaceae. (Determined by M. A. Howe.)

LEJEUNEA LUCENS Tayl.

On dripping limestone along Horsepen Creek between McDowell
County, West Virginia, and Tazewell County, Virginia, alti-
tude 1850 feet, July 31, 1900 (*Morris*, 1116b).

Anthoceraceae.

ANTHOCEROS LAEVIS L.

On dripping limestone along the Guyandot River below Baileys-
ville, Wyoming County, altitude 1200 feet, August 15, 1900
(*Morris*, 1221).

Bryaceae. (Determined by Mrs. E. G. Britton.)

DICRANUM DRUMMONDII Muell.

On the mountain between Barrenshe Creek and Dry Fork, Mc-
Dowell County, altitude 1700 feet, August 6, 1900 (*Morris*,
1165).

BRYUM ROSEUM Schreb.

Along Horsepen Creek, McDowell County, July 31, 1900 (*Mor-
ris*, 1119).

POGONATUM BREVICAULE Beauv.

North slopes on Road Run, Wyoming County, August 12, 1900
(*Morris*, 1176).

RHYNCHOSTEGIUM RUSCIFORME B. & S.

See under *Bryum roseum* (*Morris*, 1117).

Pteridophyta.

Polypodiaceae.

Polypodium vulgare oreophilum Maxon, subsp. nov.*

Rhizoma slender, extensively creeping, covered thickly with spreading chaff; stipe 5 to 8 inches long, greenish to stramineous; laminae very dark green above, lighter below, 7 to 11 inches long, $2\frac{1}{2}$ to 4 inches broad; pinnae distant from once to twice their width, broadest in the middle and tapering to an acute apex, the margin doubly crenate or occasionally nearly entire, the base broadly decurrent, veins sinuous and prominent in drying, the veinlets usually forking twice; tip of lamina long acuminate, as in *P. falcatum*; sori very large, often irregularly disposed.

Type in the U. S. National Herbarium, Smithsonian Institution, collected by E. L. Morris, No. 1215, on rocks, along the Guyandot River below Baileysville, Wyoming County, W. Va., alt. 1100-1250 feet, August 13-19, 1900. This fern has already been briefly characterized† by Dr. Millspaugh as *Polypodium vulgare* forma *biserrata* (sic). The name *biserratum* being already preoccupied by a Mexican fern‡ it becomes necessary, in referring to the West Virginian plant, to substitute a new name. In addition I would refer here Mr. Morris' 1207 collected near the type station; also Pollard & Maxon's No. 25, collected Aug. 21, 1899, at Quinnimont, W. Va., which I have previously referred|| tentatively to the variety *acutum* Moore§. From *acutum* it differs in the narrower and more spatulate pinnae, and commonly in the double crenation, for *acutum* is normally with entire, or at most slightly serrulate, pinnae. Mr. Morris states that typical *vulgare* was common in the general region; from this it differs in its much greater size, its scantier foliage, and in the shape of the pinnae. There are in the National Herbarium at least two specimens, collected in West Virginia and North Carolina, which with plants collected at Great Falls, Fairfax County, Va., by William Palmer, are to be regarded as intermediate with typical *vulgare*. Because of these it does not seem best to regard *oreophilum* as entitled to specific rank.

Selaginellaceae.

SELAGINELLA APUS (L.) Spring.

In a luxuriant mass among the grass and shrubs along the edge

*Published by permission of the Secretary of the Smithsonian Institution.

†Bull. 24, W. Va. Exp. Sta., p. 479. 1892.

‡*Polypodium biserratum* M. & G. Mem. Foug. Mex. p. 38. 1842.

||Fern Bull. 8: 58. 1900.

§Moore, Nat. Pr. Brit. Ferns, 1: 63, pl. II, fig. a. 1859.

of an island in the Bluestone River, opposite Delashmeet Creek, Mercer County, altitude 2080 feet, July 27, 1900 (*Morris*, 1061).

Spermatophyta.

Pinaceae.

Tsuga Canadensis (L.) Carr.

This species with *Fagus Americana*, *Quercus nigra* and *Quercus alba* form the body of the mountain forests.

Naiadaceae.

POTAMOGETON PECTINATUS L. (Determined by F. V. Coville.)

Forming large masses on the bars of the Greenbrier River at Talcott, Summers County, altitude 1490 feet, August 24, 1900 (*Morris*, 1342).

Vallisneriaceae.

VALLISNERIA SPIRALIS L.

Among the pondweeds in the Greenbrier River at Talcott, Summers County, altitude 1490 feet, August 24, 1900 (*Morris*, 1341).

Gramineae. (Determined by Messrs. Ball and Merrill.)

PASPALUM LAEVE PILOSUM Scribn.

Along Horse and Hound Creeks, near Baileysville, Wyoming County, altitude 1100-1200 feet, August 20, 1900 (*Morris*, 1284).

PANICUM ELONGATUM Pursh.

At the edge of thickets along Horse and Hound Creeks, near Baileysville, Wyoming County, altitude 1100-1200 feet, August 20, 1900 (*Morris*, 1277).

PANICUM COMMUTATUM Schult.

In a woodland near Bargers Spring, Summers County, altitude 1500 feet, July 13, 1900 (*Morris*, 977).

PANICUM POLYANTHES Schult.

Shaded banks of the Guyandot River below Baileysville, Wyoming County, altitude 1100 feet, August 13, 1900 (*Morris*, 1186).

PANICUM NITIDUM Lam.

Along the edge of a meadow at Bargers Spring, Summers County, altitude 1500 feet, July 13, 1900 (*Morris*, 984).

PANICUM BARBULATUM Michx.

Along Dry Fork above Perryville, McDowell County, altitude 1200-1300 feet, August 4, 1900 (*Morris*, 1139); along the Guyandot River below Baileysville, Wyoming County, altitude 1100 feet, August 13, 1900 (*Morris*, 1193).

AGROSTIS CANINA L.

On shaded banks of the Guyandot River below Baileysville,

Wyoming County, altitude 1100 feet, August 13, 1900 (*Morris*, 1197).

AGROSTIS CAPILLARIS L.

As the preceding (1197a).

Cyperaceae.

CYPERUS RETROFRACTUS (L.) Torr.

Along the Guyandot River below Baileysville, Wyoming County, altitude 1100 feet, August 18, 1900 (*Morris*, 1236a).

CYPERUS FILICULMIS Vahl.

As the preceding, August 19, 1900 (*Morris*, 1267).

CAREX UTRICULATA Boott.

In a meadow at Bargers Spring, Summers County, altitude 1500 feet, July 13, 1900 (*Morris*, 995).

Melanthaceae.

UVULARIA GRANDIFLORA J. E. Smith.

On a north slope in rich woods along Horsepen Creek between McDowell County, West Virginia, and Tazewell County, Virginia, altitude 1900 feet, July 31, 1900 (*Morris*, 1110).

Betulaceae.

Betula nigra L.

A tree 14' 2½'' in circumference was measured near Bargers Spring, Summers County.

Fagaceae.

Fagus Americana Sweet.

(See under *Tsuga Canadensis*.)

Castanea pumila (L.) Mill.

A remarkably spreading and symmetrical individual was observed in a pasture at Bargers Spring, Summers County.

Quercus nigra L.

(See under *Tsuga Canadensis*.)

Quercus alba L.

(See under *Tsuga Canadensis*.)

Aristolochiaceae.

ASARUM SHUTTLEWORTHII Britten & Baker f. (Determined by C. L. Pollard.)

In oak and beech woods near Bargers Spring, Summers County, altitude 1550 feet, July 13, 1900 (*Morris*, 980).

Polygonaceae.

POLYGONUM CRISTATUM Engelm. & Gray.

Along the Guyandot River below Baileysville, Wyoming County, altitude 1100-1250 feet, August 19, 1900 (*Morris*, 1255).

Caryophyllaceae.

Silene Virginica L.

Growing on a low roadside bank, fully exposed to the sun, but well supplied with root moisture.

Anychia dichotoma Michx.

Millspaugh & Nuttall say "This species first appeared at this locality in 1895, at the bottom of a newly excavated railroad cut. Had the seeds been buried and dormant?" I should say, no. This species was common with and nearly as abundant as the next throughout the above mentioned counties. It is probable that the newly excavated cut proved, perhaps unusually, suitable for the germination of scattering seeds.

Anychia Canadensis (L.) B. S. P.

Magnoliaceae.

Magnolia tripetala L.

This and the next species form a very conspicuous part of the forests along Dry Fork and Crane Creek in McDowell County, and along the Guyandot River in Wyoming County. A great many young trees are now filling the places made vacant by the cutting of a few selected trees of other species. It is noticeable that until these trees reach the age of flowering and thereafter there is none of the characteristic umbrella-like clustering of the leaves on the axis of the season but they are strongly alternate and distant. This character confuses the species with *Magnolia acuminata* in the young large-leaved stage, unless the smoothness or pubescence of the leaf-buds be noted.

Podostemaceae.

PODOSTEMON CERATOPHYLLUM Michx.

Three well marked stages, (a) an entirely sessile growth on new surfaces, (b) matted growth of previous seasons on old surfaces, with stems an inch or two high, (c) very old masses with stems from five to eight inches high or as long where the current prevented an erect habit; in the Guyandot River below Baileysville, Wyoming County, altitude 1100 feet, August 15, 1900 (*Morris*, 1210).

Crassulaceae.

Penthorum sedoides L.

Very luxuriant specimens three feet and more high were noted in the delta of a spring under limestone cliffs below Baileysville, Wyoming County.

Rosaceae.

Spiraea salicifolia L.

Forming a hedge along a woodland swamp between Harvey and Trap Hill, Raleigh County.

GEUM FLAVUM (Porter) Bicknell.

Along Madam Creek opposite Hinton, Summers County, altitude 1500 feet, July 9, 1900 (*Morris*, 965); along the Guyandot River below Baileysville, Wyoming County, altitude 1250 feet, August 15, 1900 (*Morris*, 1218).

AGRIMONIA HIRSUTA (Muhl.) Bicknell.

In a thicket about a spring near Kegley, Mercer County, altitude 2100 feet, July 21, 1900 (*Morris*, 1042).

Drupaceae.

AMYGDALUS PERSICA L.

Several trees were growing in the woods along Dry Fork above Peeryville, McDowell County, altitude 1300 feet, August 4, 1900 (*Morris*, 1130).

Papilionaceae.

MEIBOMIA PAUCIFLORA (Nutt.) Kuntze.

In woods along Laurel Branch east of Oceana, Wyoming County, altitude 2000 feet, August 22, 1900 (*Morris*, 1291).

Meibomia Dillenii (Darl.) Kuntze.

Locally a very troublesome weed in fields.

Hippocastanaceae.

Aesculus octandra Marsh.

An immense tree of this species, measuring twenty feet in circumference at the ground, twelve feet at the height of one's shoulder, and nearly if not quite one hundred feet high, stood by the bank of Dry Fork above Peeryville, McDowell County.

Violaceae. (Determined by C. L. Pollard.)

VIOLA AFFINIS LeConte.

About a spring near Kegley, Mercer County, altitude 2090 feet, July 21, 1900 (*Morris*, 1046).

VIOLA PAPILIONACEA Pursh.

On Great Bend Tunnel Mountain, Summers County, altitude 1700 feet, July 14, 1900 (*Morris*, 1023); along Horsepen Creek, McDowell County, altitude 1900 feet, July 30, 1900 (*Morris*, 1104).

VIOLA ALSOPHILA Greene. •

As the last number (*Morris*, 1101); ditto, altitude 1850 feet, (*Morris*, 1109).

Umbelliferae.

SANICULA TRIFOLIATA Bicknell.

Along Madam Creek opposite Hinton, Summers County, altitude 1500 feet, July 9, 1900 (*Morris*, 961).

Cuscutaceae.

CUSCUTA ARVENSIS Beyrich.

On *Ambrosia artemisiaefolia* in very dry grounds below Baileys-

ville, Wyoming County, altitude 1150 feet, August 13-19, 1900 (*Morris*, 1203a).

Boraginaceae.

MYOSOTIS LAXA Lehm.

About a spring near Kegley, Mercer County, altitude 2090 feet, July 21, 1900 (*Morris*, 1041).

Labiatae.

BLEPHILIA CILIATA (L.) Raf.

On dry banks at Bargers Spring, Summers County, altitude 1500 feet, July 13, 1900 (*Morris*, 999); thickets near Kegley, Mercer County, altitude 2100 feet, July 27, 1900 (*Morris*, 1067).

Solanaceae.

Solanum Carolinense L.

This species and *Verbesina occidentalis* were the commonest weeds throughout the range.

Plantaginaceae.

PLANTAGO ARISTATA Michx.

Previously reported only by State in Bull. Torr. Bot. Club, 27: 108.

Dry meadows near Bargers Spring, Summers County, altitude 1500 feet, July 13, 1900 (*Morris*, 983).

Campanulaceae.

Campanula divaricata Michx.

Millspaugh & Nuttall mention "the rare *Campanula divaricata* Mx." among the bell-worts or bellflowers. If the southern counties are to be taken into consideration in rating the occurrence of species in the State, then this species can not be accounted "rare" for the more rocky hillsides throughout are heavily blue-dotted in the Summer with its delicate panicles.

Compositae.

Vernonia gigantea pubescens subsp. nov.

In gross characters like the species. Reaching 10° or over, more or less pubescent. Leaves thin, lanceolate, acuminate, the upper finely, the lower *sharply doubly serrate*, 3'-12' long, $\frac{1}{2}$ '-2 $\frac{1}{2}$ ' wide, *finely pubescent below*, somewhat so above; inflorescence open, its branches rather erect, the peduncles *bracteate for 2''-5'' below the heads*; the heads long-peduncled or the centre ones nearly sessile; the bracts greenish purple, acute to short-acuminate, ciliate, erect; corollas light to dark pink, not purple; otherwise as in the species.

Collected among plants of the species along Hound Creek, below Baileysville, Wyoming County, altitude 1100-1200 feet, August 20, 1900 (*Morris*, 1274). Type specimen is deposited in the U. S. National Herbarium.

Eupatorium purpureum L.

Numerous specimens were measured which were over twelve feet high.

SERICOCARPUS LINIFOLIUS (L.) B. S. P.

On dry shaded banks along the road above Hinton, Summers County, altitude 1400 feet, July 7, 1900 (*Morris*, 950).

ASTER CLAYTONI Burgess.

Along rocky banks east of Oceana, Wyoming County, altitude 1300 feet, August 22, 1900 (*Morris*, 1294a).

ASTER SAGITTIFOLIUS Willd.

On dry banks between Piney, Raleigh County, and Jumping Branch, Summers County, altitude 2200-3100 feet, August 24, 1900 (*Morris*, 1338).

GIFOLA GERMANICA (L.) Dumort.

Along the road north of Athens, Mercer County, altitude 2500 feet, July 18, 1900 (*Morris*, 1034).

In preparing this paper the arrangement of the Myxomycetes is according to McBride; the remaining Thallophytes according to Engler & Prantl; the hepatic Bryophytes according to Millspaugh & Nuttall; the true mosses according to Lesquereux & James; the Pteridophytes and Spermatophytes according to Britton & Brown.

Strong heliotropic movements were observed almost daily in various species of *Oxalis*, in *Cercis Canadensis*, *Trofolium dubium* (?), *Vitis cordifolia*, *Robinia hispida* (?), and questionably in *Impatiens aurea*. These species are quoted in the order of those with the greatest movement to those with the least.

Professor C. F. Millspaugh has requested that the following additions be published in this paper, so that the report of species new to West Virginia may be as complete as possible. It is a pleasure to so publish his list.

Fungi.

PERICHAENA FLAVIDA Pk.

On bark of dead *Magnolia Fraseri*, Nuttallburg.—L. W. Nuttall.

ZYGODESMUS TILIACEUS E. & E.

On bark of dead *Magnolia Fraseri*, Nuttallburg.—L. W. Nuttall.

CLADOSPORIUM CORYNITRICHUM E. & E.

On leaves of *Magnolia Fraseri*, Nuttallburg.—L. W. Nuttall.

- CLASTERISPORIUM SIGMOIDEUM, E. & E.
Bull. Torr. Club, 26:472. 1897.
- HELMINTHOSPORIUM FUSIFORME Corda.
On old barrel staves, Nuttallburg.—L. W. Nuttall.
- FUSARIUM ALEURINUM E. & E.
Bull. Torr. Club, 24:476. 1897.
- FUSARIUM OXYDENDRI E. & E.
Ibid page 477.
- PHYLLOSTICTA ALTHAEINA Sacc.
On *Abutilon Avicennae*, Nuttallburg.—L. W. Nuttall.
- FUSICOCUM NERVICOLUM E. & E.
Bull. Torr. Club, 25:609. 1898.
- CYTISPORA TUMULOSA E. & E.
Bull. Torr. Club, 24:288. 1897.
- CYTISPORELLA CARNEA E. & E.
Ibid page 287.
- DIPLODIA PARAPHYSATA E. & E.
Ibid page 288.
- AECIDIUM ILICINUM E. & E.
Ibid page 284.
- SPHAERELLA INFUSCANS E. & E.
Bull. Torr. Club, 25:504. 1898.

Filices.

- ASPLENIUM FILIX-FOEMINA PECTINATUM Wall.
Falls of the Blackwater.—C. F. Millspaugh.

Phanerogamia.

- LOLIUM ITALICUM A. Br.
Common on lawns in Fairmont, 1898.—A. Boutlou.
- ORNITHOGALUM NUTANS L.
In a ravine above the glass factory north of Morgantown.—A. Boutlou.
- POTENTILLA RECTA L.
“I find this plant growing in abundance in a meadow near South Fairmont.”—A. Boutlou.
- AGRIMONIA BRITTONIANA Bick.
Bull. Torr. Club, 23:517. 1896.
- ROSA SETIGERA Michx.
A common escape about Fairmont.—A. Boutlou.
- CRATAEGUS BROWNII Britt.
Bull. N. Y. Bot. Gard., 1:447. 1900.

- KNEIFFIA LONGIPEDICELLATA Small.
Bull. Torr. Club, **23**:178. 1896.
- VACCINIUM CONSTABLAEI Gray.
Upshur Co.—W. N. Pollock.
- SABBATIA CORYMBOSA Baldw.
Found at West Fairmont.—A. Boutlou.
- AMPELANUS ALBIDUS (Nutt.) Britton.
An abundant weed about Charleston.—A. Boutlou.
- PHLOX BRITTONII Small.
Bull. Torr. Club, **27**:279. 1900.
- MEEHANIA CORDATA (Nutt.) Britton.
Upshur Co.—W. N. Pollock.
- PLANTAGO ARISTATA Michx.
Plentiful near Farmington.—A. Boutlou. (Mr. Boutlou's specimens
are those referred to in the citation under *P. aristata* above. [E.
L. M.]
- VERNONIA MAXIMA Small.
Bull. Torr. Club, **27**:280. 1900.
- SOLIDAGO NEGLECTA T. & G.,
Upshur Co.—W. N. Pollock.
- ASTER NOVAE-ANGLIAE L.
Near Palatine, and near Fairmont.—A. Boutlou.
- ANTENNARIA PROPINQUA Greene.
Pittonia, **4**:83. 1899.
- BIDENS MELANOCARPA Wieg.
Bull. Torr. Club, **26**:407. 1899.

Department of Biology, Washington High Schools.